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ABSTRACT

The Wechsler Intelligence Scale for Children-Revised (WISC-R) and Kaufman Assessment Battery for Children (K-ABC) were used to predict achievement (measured by the Stanford Achievement Test) for 200 students with mild handicaps, in grades K through 6 in a rural western school district. Males scored significantly higher than females for every variable except Freedom From Distractibility (FFD). Both tests predicted achievement equally for each sex, but overall, females had significantly lower ability and achievement scores. It is concluded that the intelligence tests are not biased, and are therefore not responsible for the disproportion of male students in special education. It is also concluded that females must function at a lower level than males to be placed in special education. (Contains 18 references.) (JDD)

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Sex differences in special education placement:

Are IQ tests sex biased?

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Running Head: SEX BIAS

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Sex differences in special education placement: Are IQ tests sex biased?

Abstract

To determine if tests play a part in the disproportionate amount of males in special education, we investigated whether IQ tests predicted achievement the same for each sex. The WISC-R and K-ABC were used to predict achievement for 200 mildly handicapped students. Both tests predicted achievement equally for each sex, but overall, females had significantly lower ability and achievement scores. Clearly, females must function at a lower level than males to be placed in special education. Implications for practitioners are discussed.

Sex differences in special education placement:

Are IQ tests sex biased?

The Wechsler Intelligence Scale for Children-Revised (WISC-R; Wechsler, 1974) and Kaufman Assessment Battery for Children (K-ABC; Kaufman & Kaufman, 1983) are two of the most frequently used assessment instruments for children referred for special education (Sattler, 1988). One of the primary uses and validation methods of these instruments is prediction of achievement (Reschly & Grimes, 1990). As such, an ability test should predict achievement equally well for all groups. Therefore, the WISC-R and K-ABC should predict achievement fairly, (i.e., without regard to group membership) (APA, 1985; Public Law 94-142, 1977).

Most IQ tests have been shown to predict achievement equally for different racial groups (Reynolds & Kaiser, 1990). However, it has not been established if they predict achievement with equal accuracy for males and females.

Selkow (1984) claimed that many commonly used intelligence tests, including the WISC-R, are sex biased. However, her argument

merely posited that WISC-R item content favored males and contained demeaning stereotypes of females. There was no empirical analysis of test bias in a predictive sense.

Test publishers routinely leave in items that are biased against males or Caucasians while removing items biased against females or minorities (Stone & Gridley, 1990). This perhaps accounts for why, when test bias is found, it tends to be against the majority group (Reynolds & Kaiser, 1990). Indeed, if tests are biased against males it could help explain why males have consistently outnumbered females in special education. If tests are not biased against males, then alternative explanations for disproportionate placement should be considered.

The crucial question to ask in test bias is whether the test forecasts some relevant criterion equally well for both groups (Cleary, 1968; Jensen, 1980). Several external criteria have been considered, but there is not agreement as to which is best. Grade point average (GPA) has been criticized for its tendency toward restricted range and low reliability, and because it represents only an ordinal scale of measurement (Reynolds, 1983). Moreover, GPA has been criticized for being a hodgepodge that varies with course selection and course content

(Wild & Dwyer, 1977). Indeed, course selection may be influenced by sex, which would bias GPA as a criterion (Selkow, 1984).

Group achievement tests, however, tend to make better criteria, because of their high reliabilities and because content is specific and standardized across subjects. The Stanford Achievement Test (SAT; Psychological Corporation, 1986) is typical of these tests, with composite reliabilities in the .90's. Perhaps most salient to this study, the SAT contains an equal amount of male and female item content, with no demeaning stereotypes of women (Selkow, 1984). Therefore, the SAT appears to be a valid and relevant criterion for determining sex bias.

Method

Two multiple regression analyses were run. Total battery SAT scores were regressed on each ability composite, followed by sex, and the interaction of sex and ability. If sex and/or the interaction added above and beyond what ability predicted, test bias would be indicated.

Subjects were 200 special education students in grades kindergarten through six in a rural Western school district. 92% were Caucasian, 5% Hispanic, and 3% Native American. 58.5% were classified as LD, 36.5% BD, and 5% EMR. The grade level distribution

was positively skewed as most students were in kindergarten through grade three. Males outnumbered females by a 2:1 ratio. LD students outnumbered BD students in both groups, and BD outnumbered EMR. A chi-square test showed proportion of handicapping conditions in both groups to be similar.

Results

Males scored significantly higher than females for every variable except Freedom From Distractibility (FFD), as seen in Table 1 (all scores are standard scores with mean of 100 and standard deviation of 15). The WISC-R Verbal IQ scores and SAT Total Battery were most discrepant. All standard deviations were restricted, which makes good sense in light of the sample.

Insert table 1 about here

Table 2 details the multiple regression analyses. The WISC-R analysis shows a relatively low correlation with achievement (r = .43, p <.001) due to the restricted range. Sex did not increase the prediction of achievement above and beyond the WISC-R FSIQ. This indicated the

WISC-R is not biased in regard to sex. Similarily, the K-ABC analysis shows no sex bias, and a slightly higher correlation between the MPC and achievement (r = .48, p <.001).

Insert table 2 about here

Subsequent analyses showed the WISC-R VIQ and PIQ to be nonbiased, as well as the K-ABC Sequential and Simultaneous Processing Composites. Similarily, when Math or Reading were used as a criterion, the WISC-R and K-ABC Composites were not sex biased.

Discussion

Consistent with past research, special education females scored lower on all variables, particularly verbal and achievement scores (Jeffrey, 1991; Smith, Edmonds, & Smith, 1989). Females must be functioning extremely poorly in these areas to be placed in special education. However, females scored higher on the WISC-R FFD, a factor sometimes noted as more behavioral than cognitive (Sattler, 1988). This suggests a behavioral component to the disproportionate placement of males in special education. In other words, males score

higher except on a variable that measures behavioral attributes, such as attention and distractibility.

The WISC-R and K-ABC predicted achievement equally for males and females. The IQ tests are not biased, and are therefore not responsible for the disproportion of males students in special education.

It is apparent that females in need of service may be under referred, as males and females are known to score equally in most general ability and achievement measures (Sattler, 1988). Practitioners should be aware of this discrepancy. It may be that females are not as prone to act out their frustration at not achieving as are males. Further, teachers may be quicker to refer poor-achieving males, whether due to behavior or higher societal expectations for males (Moore & Johnson, 1983; Shinn, Tindal, & Spira, 1987).

Practioners should be aware that referred females may present with much lower ability and achievement scores than referred males. Therefore, it follows that once referred, a female would have an ever greater chance of being placed in special education than a male. In any event, commonly used intelligence tests do not appear to contribute to the sex bias in special education placement.

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Table 1

Means, Standard Deviation, Numbers and t-test by Sex

	Male			Female			t-test
	Mean	(SD)	N	Mean	(SD)	N	p
WISC-R Composites							
WISC-R FSIQ	93.7	(12.1)	97	88.7	(11.5)	48	**
WISC-R VIQ	93.2	(12.3)		86.7	(10.8)		***
WISC-R PIQ	96.6	(13.7)		93.4	(13.3)		*
WISC-R FFD	86.9	(11.1)		89.4	(12.0)		*
K-ABC Composites							
K-ABC MPC	91.4	(11.9)	47	85.4	(12.4)	23	*
K-ABC SIM	93.6	(12.3)		87.9	(10.9)		*
K-ABC SEQ	92.1	(13.0)		85.9	(12.9)		*
SAT Composite							
SAT TBAT	86.9	(11.2)	135	80.4	(10.9)	67.	***

Note. *<.05. **<.01. ***<.001.

Table 2

Regression of Achievement on Ability, Sex, and Its Interaction

Source	df	Change in R^2	F for increase	p
WISC-R N = 145 (48 females, 97 males)				
WISC-R FSIQ	1	.186	31.00	<.001
Sex	1	.002	0.33	NS
Interaction	1	.001	0.17	NS
Residual	141			
Total	144			
K-ABC N = 70 (23 females, 47 males)				
K-ABC MPC	1	.230	19.17	<.001
Sex	1	.002	0.17	NS
Interaction	1	.002	0.17	NS
Residual	66			
Total	69			

Note. NS = p >.05.